

Claims

5 1. Air guiding flap of an aircraft wherein one surface (28) thereof faces an air duct and is exposed to a prevailing pressure in the air duct and whose opposite surface (30) is exposed to the pressure of the relative wind flowing past the aircraft which air guiding flap comprises an actuator (34) for automatically opening and closing the air guiding flap and which actuator (34) cooperates with a device for controlling the position of the air guiding flap, characterised in that

10 - a force detecting device (36) is provided which force detecting device (36) detects the force impinging on the actuator (34) based on a difference between the prevailing pressure in the air duct and the pressure of the relative wind flowing past the aircraft and that

15 - the controlling device adjusts the position of the air guiding flap such that the force respectively impinging on the actuator (34) is at least essentially zero.

25 2. Air guiding flap according to Claim 1 characterised in that the air guiding flap is a ram air escape flap (26) and that the pressure in the air duct is a dynamic pressure and that the ram air escape flap (26) is forcibly closed in the event that the pressure force impinging thereon of the relative wind flowing past the aircraft is greater than the pressure force impinging thereon of the dynamic pressure in the air duct until at least an approaching equilibrium of the said pressure forces ensues.

30 3. Air guiding flap according to Claim 1 or 2 characterised in that the air guiding flap is a ram air escape flap (26) and the pressure in the air duct is a dynamic pressure and that the ram air escape flap (26) is forcibly opened in the event that the pressure force impinging thereon of the relative wind flowing past the aircraft is less than the pressure force impinging thereon of the dynamic pressure in the air duct until at least an approaching equilibrium of the said pressure forces ensues.

35 4. Ram air system for supplying ram air to an auxiliary assembly of an aircraft, comprising a ram air duct (16) having an intake opening and an escape opening and from which ram air duct the required ram air for the auxiliary assembly is taken and further comprising a ram air intake flap (24) controlling the flow cross section of the

intake opening and a ram air escape flap controlling the flow cross section of the escape opening

characterised in that

- the quantity of required ram air for the auxiliary assembly is controlled by opening or closing the ram air intake flap (24) and that
- the ram air escape flap (26) is an air guiding flap according to Claim 2 or 3.

5. Ram air system according to Claim 4,

characterised in that the auxiliary assembly is a fresh air generating device of an aircraft.

10 6. Ram air system according to Claim 5

characterised in that the control parameter for the position of the ram air intake flap (24) is the temperature at the output of a compressor of the fresh air generating device.

15 7. Ram air system according to Claim 6

characterised in that the ram air intake flap (24) is forcibly opened in the event that the compressor output temperature exceeds a predetermined temperature value.

20 8. Ram air system according to Claim 6 or 7

characterised in that the ram air intake flap (24) is forcibly closed in the event that the compressor output temperature falls short of a predetermined temperature value.

25 9. Process for controlling the position of an air guiding flap of an aircraft,

comprising an inner side and an outer side, characterised in that the position of the air guiding flap in flight is controlled such that the aerodynamic flow forces impinging on the inner side and the outer side of the air guiding flap are at least approaching equilibrium.